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ABSTRACT

The national office of Job Corps, in conjunction with the Ohio State University, formulated a research project to determine the incidence of learning problems among Job Corps members and to make recommendations concerning the need for instructional strategies. The diagnostic instrument selected was The London Procedure: A Screening, Diagnostic, and Teaching Guide, which screens for visual and auditory functions, visual and auditory perceptions, and reading encoding and decoding. Forty Job Corps members were selected in each of ten sites--twenty enrolled less than thirty days and twenty enrolled thirty days or longer. Data for 404 Job Corps members were analyzed to determine the number of weaknesses identified for each subject. (A weakness was a score at or below a specified criterion for each test.) A continuum according to the number of tests on which a Job Corps member scored below criteria was used to classify the severity of learning problems. The incidence of learning problems ranged from low to extreme in 91% of those tested. Corps members with a low level of severity may be able to function adequately in existing educational programs. Those in moderate, high, and extreme categories--some 40% of those tested--are in need of special instructional programs. (Author/YLB)

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Job Corps Learning Problems Screening Project

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Abstract

Following recommendations by an Education Improvements Committee, the national office of Job Corps, in conjunction with the Ohio State University, formulated a research project to determine the incidence of learning problems among Job Corps members, and to make recommendations concerning the need for instructional strategies. The London Procedure: A Screening, Diagnostic and Teaching Guide was selected as the diagnostic instrument used in the research project. The London Procedure screens for Visual and Auditory Functions, Visual and Auditory Perceptions, and Reading Encoding and Decoding.

Ten Job Corps sites were identified for participation. Each site provided staff who received 3 days of training in administration of The London Procedure. The research design included random selection of 40 Job Corps members in each site, equally divided between new Job Corps members (enrolled in Job Corps less than 30 days) and old Job Corps members (enrolled in Job Corps 30 days or longer) Data were returned for 404 Job Corps members. Data were analysed to determine the number of weaknesses identified for the 404 Job Corps members. A weakness was defined as a score at or below a specified criterion for each test.

A continuum according to the number of tests on which a Job Corpsmember scored below criteria was used to classify the severity of learning problems.

The research project showed the incidence of learning problems ranging from low to extreme, in 91% of those tested. Corpsmembers with a low level of severity may be able to function adequately in existing educational programs. Those in moderate, high, and extreme categories, which included some 40% of those tested, are in need of special instructional programs.

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INTRODUCTION

Job Corps is a federally funded program in the U.S. Department of Labor. The primary focus of Job Corps is to provide vocational skills to youth for entry into the labor force. Job Corps programs include an educational component designed to improve educational competency in reading and mathematics.

As a part of entry processing, new Job Corpsmembers are administered reading and mathematics placement tests specifically designed for Job Corps. These tests are Reading Job Corps Screening Number 1 (RJS1) and Mathematics Job Corps Screening Number 1 (MJS1). Uniform admission processing does not include diagnostic testing.

In 1978 Job Corps sponsored an Educational Innovation Conference. A conference committee met to plan educational improvements in the Job Corps program. This planning committee recognized that retention of new Job Corpsmembers might be improved with a thorough diagnosis of information processing skills and abilities of entering Job Corpsmembers leading to greater individualization of educational programs.

The Educational Innovations Conference Committee met with representatives of The Ohio State University to consider a procedure for diagnostic testing used for the identification of adults with specific learning problems. This process, The London Procedure: A Screening Diagnosis and Teaching Guide For Adult Learning Problems, is unique in its specific use with adult populations, as opposed to testing designed for children and adolescents. The London Procedure includes assessment of Visual Functions, Auditory Functions, Visual Perceptions, Auditory Perceptions, and Reading Encoding and Decoding.

Acting on recommendations of the Educational Innovation Committee, the national Job Corps office in conjunction with researchers at The Ohio State University formulated a research project designed to determine the incidence of learning problems among Job Corpsmembers. The London Procedure was selected as the diagnostic instrument used in the research project.

Ten Job Corps sites were identified for the purpose of determining the incidence of learning problems using The London Procedure. Each of the sites provided staff to be trained in administration of The London Procedure. These staff members attended a 3-day training workshop in Columbus, Ohio. They then returned to their home sites and used uniform random selection procedures to identify 40 Job Corpsmembers in each site who were administered The London Procedure. Data from 404 Job Corpsmembers were processed and analyzed by staff from The Ohio State University to determine learning problem incidence.

SAMPLE

Testing scores were received from participating Job Corps sites as shown in Table I.

TABLE 1

Job Corps Sample for
London Procedure Testing

Site	N
Atlanta, Georgia	40
Cincinnati, Ohio	40
Cleveland, Ohio	41
Excelsior Springs, Missouri	40
Galconda, Illinois	40
Atterbury, Indiana	40
Woodstock, Maryland	44
Oconoluftee, North Carolina	42
Pittsburgh, Pennsylvania	37
El Paso, Texas	40
Total Group	404

Descriptive data for the sample are shown in Table II.

TABLE II

Descriptive Data for Sample

Variable	YES		NO		Data not Available	
	N	%	N	%	N	%
Subject wears glasses	95	23.5	305	75.5	4	1.0
Previously tested for LD	73	18.1	324	80.2	7	1.7
Previously helped as LD	60	14.9	329	81.4	15	3.7

	Male		Female		Data not Available	
	N	%	N	%	N	%
Sex	244	60.4	159	39.4	1	0.2

	Right		Left		Data not Available	
	N	%	N	%	N	%
Handedness	357	88.4	34	8.4	13	3.2

	Age 16-19		Age 20-23		Data not Available	
	N	%	N	%		
Age Range	288	71.3	111	27.6	5	1.2

	30 days or Less (New)		More than 30 days (Old)		Data not Available	
	N	%	N	%	N	%
Time in Program	200	49.5	201	49.8	3	.7

Table II shows that approximately 25% of the Job Corpsmembers tested wore glasses at the time of testing. Fewer than 20% had been previously tested for learning problems, with about 15% reporting previous help for learning problems. Over 90% were right handed, the mean age was 18.6 years and about two-thirds of the sample were male.

Job Corpsmembers were classified on the basis of time enrolled. A member who had been enrolled 30 days or longer as of March 26, 1979 was considered as an "old" member. A member who had been enrolled less than 30 days as of March 26, 1979 was considered as a "new" member. Old members and new members were equally represented in the sample due to a stratified random selection procedure.

Analysis of data comparing old Job Corpsmembers with new Job Corpsmembers indicates that old Job Corpsmembers were older than new Job Corpsmembers, which was expected. Further, old Job Corpsmembers showed a higher incidence of previous testing for learning problems than did new members. The old members tended to have lower entry test scores on RJS1 and MJS1 testing. The reasons for these findings are not apparent.

Descriptive statistics on Job Corps entry tests is reported in Table III. The relationships between performance on the RJS1 testing and The London Procedure testing can be found in Tables VI in text and Tables IX, X, XII, XIII, XIV in Appendix A.

TABLE III

Job Corps Entry Tests
Descriptive Statistics

	Range	Mean	Standard Deviation
RJS1	0-25	14.1	5.6
MJS1	0-87	45.6	18.1

THE DIAGNOSTIC INSTRUMENT

The London Procedure, used as the diagnostic instrument to determine incidence of learning problems within the 10 selected Job Corps sites, was composed of 15 sub-tests. The procedure was administered on a one-to-one basis, one examiner to one examinee. Each completed testing took approximately 45 minutes of time.

Sub-tests reported from The London Procedure were as follows:

DA-R and DA-L refer to DISTANCE ACUITY for the right and left eye. These sub-tests detect adults whose visual acuity is low enough to present a problem when visual information is presented at a distance in the classroom.

PL-R and PL-L refer to PLUS LENS for the right and left eye. These sub-tests detect those farsighted adults who are unable to focus their eyes for near vision.

NA-R and NA-L refer to NEAR ACUITY for the right and left eye. These sub-tests detect those adults with insufficient visual acuity to read textbook material at the usual reading distance.

BIN refers to BINOCULARITY. This sub-test is used to detect those adults who have difficulty using both eyes to read, or have a tendency to use only one eye to read.

MFT refers to MOTOR FREE TESTS. These sub-tests include the major areas of visual perception without requiring motor involvement other than pointing to the chosen response for each item.

EHMC refers to EYE HAND MOTOR COORDINATION. The sub-test of eye-hand-motor coordination involves the drawing of continuous lines between boundaries from one point to another. Eye-hand-motor coordination is the basic mechanism needed for writing and copying.

VMI refers to VISUAL MOTOR INTEGRATION. This sub-test is a test of imitation, copying, size consistancy, spatial concepts, and eye-hand coordination. Visual motor tasks include learning to write and copying materials from board or book to paper.

PTSF-R and PTSF-L refers to PURE TONE SWEEP FREQUENCY for the right and left ears. Adults having difficulty meeting the criteria for these sub-tests may have a hearing dysfunction that is related to academic achievement, and require a referral for further hearing evaluation.

COMP refers to auditory COMPREHENSION. This sub-test assesses the adults ability to comprehend and recall information presented auditorally, such as taking oral directions, listening to taped materials, and following explanations.

SM-N and SM-W refers to AUDITORY SEQUENTIAL MEMORY of random NUMBERS and SEQUENTIAL MEMORY OF WORDS in context. SM-N assesses

the adults ability to immediately recall and repeat an auditorally presented series of numbers. SM-W assesses the ability to immediately recall and repeat related meaningful words in sentences.

ALPH, DAY SEQ, DAY SPELL, MO SEQ and MO SPELL refer to writing of the ALPHABET, DAYS OF THE WEEK and MONTHS OF THE YEAR. Writing is done from memory, and is scored separately for sequence and for spelling. Failure to score at criteria on these tests could identify problems of sequencing, sound/symbol relationships, and directionality. Proper diagnosis of individual writing provides clues to auditory or visually related problems.

A-M refers to AUDITORY TO MOTOR. The adult is asked to write words verbally presented. This encoding process is used to note how the adult performs, and the types of errors made. Specific errors may relate to difficulty with sound/symbol patterns, or sequential problems, and can provide clues to auditory or visually related problems.

READING refers to the identification of single words. Reading of single words is primarily a diagnostic tool for the evaluation of decoding strengths and weaknesses related to visual and auditory problems.

RESULTS

Table IV lists the sub-tests of The London Procedure first and presents descriptive statistics for the sample on each of the sub-tests. A weakness is defined as a score at or below a specified weakness criterion for each sub-test.

TABLE IV

London Procedure
Sub Test Results

	Sub-Test	Range	Mean	Standard Deviation	Weakness Criterion	Frequency of Weakness	Percent of Weakness
Visual Functions	DA-R	0-8	7.3	2.0	6 or Less	52	12.9%
	DA-L	0-8	7.2	2.1	6 or Less	54	13.4%
	PL-R	0-8	7.2	2.2	6 or Less	49	12.2%
	PL-L	0-8	7.0	2.5	6 or Less	57	14.1%
	NA-R	0-10	9.9	.9	8 or Less	8	2.0%
	NA-L	0-10	9.6	1.7	8 or Less	21	5.2%
	BIN	0-8	7.1	1.6	6 or Less	82	20.3%
Visual Perceptions	MFT	0-30	25.8	2.7	22 or Less	45	11.2%
	EHMC	0-2	1.6	.7	1 or Less	101	25.1%
	VMI	0-10	7.1	2.6	6 or Less	138	34.2%
Auditory Functions	PTSF-R	0-6	5.4	1.1	5 or Less	77	30.3%
	PTSF-L	0-6	5.6	1.0	5 or Less	63	24.9%
Auditory Perceptions	COMP	0-6	4.7	1.2	4 or Less	158	39.3%
	SM-N	0-8	5.5	1.8	4 or Less	123	30.6%
	SM-W	0-24	20.2	3.9	17 or Less	82	20.4%
Reading Encoding and Decoding	ALPH	0-1	.8	.4	0	61	15.2%
	DAY SEQ	0-1	.9	.3	0	45	11.2%
	DAY SPELL	0-7	5.2	1.8	4 or Less	121	30.1%
	MO SEQ	0-1	.8	.4	0	79	19.7%
	MO SPELL	0-12	8.8	3.3	10 or Less	237	59.0%
	A-M	0-78	21.9	10.2	----	---	----
	READING	0-8.7	6.3	1.8	----	---	----

INCIDENCE OF LEARNING PROBLEMS

Describing percentages of learning problems in Job Corpsmembers does not lend itself to clear cut distinctions. The severity of learning problems on The London Procedure depends upon the number of sub-tests for which each member scored below criteria and on which tests or combinations of tests the weaknesses occurred. Viewing the severity of problems in learning on a continuum from no problems, normal, to extreme severity will best suit an evaluation of incidence in Job Corps. Table V is a summary of the incidence of learning problems based on the number of sub-test scores below criteria for each person.

TABLE V

Incidence of Learning Problems in Job Corps

N=404

Level of Severity	Number of Sub-Test Scores Below Criteria	Number of Corpsmen	Percentage
None (no problems)	0	36	8.9
Low	1-4	214	53.0
Moderate	5-8	112	27.7
High	9-12	41	10.1
Extreme	13 or More	1	.2

In Table V it can be seen that 8.9% of the tested Job Corpsmembers had no areas of weakness on The London Procedure. A low severity of learning problems was noted in 53.0% of the corpsmembers tested. Those who scored below criterion on 1-4 of The London Procedure sub-tests were classified as low severity.

Moderate learning problems were noted in 27.7% of the Corpsmembers tested. Moderate learning problems were defined as 5-8 sub test areas of weakness. High severity of learning problems and extreme learning problems were evidenced in a combined 10.3% of the Corpsmembers tested. A high level of severity is determined by failing to meet criteria on 9-12 sub tests while extreme level of severity indicates below criteria scores on 13 or more sub tests.

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Almost 40% of the sample were below criteria on 5 or more of the sub tests in The London Procedure. These Corpsmembers would be the ones most likely to benefit from special consideration and individualization in planning educational programs. The nature of these plans should be guided by the sub test scores from The London Procedure.

Table VI includes the frequency for severity of learning problems for the RJS1 scores currently used for reading placement.

TABLE VI

Frequency of Learning Problems by RJS1 Scores Levels

N=404		Learning Problem Severity (London Procedure)				
RJS1 Score Level	Grade Level Equivalent	None	Low	Moderate	High	Extreme
0-8	0-3.4	1	14	29	18	1
9-17	3.7-6.8	10	118	52	16	0
18 & above	7.1-10.1	25	82	31	7	0

In Table VI it can be seen that of those Corpsmembers showing no areas of weakness, one scored below 3.4 grade level on the RJS1, ten scored between the 3.7 grade levels and 6.8 grade levels on the RJS1 and 25 scored between the 7.1 and 10.1 grade levels on the RJS1 reading placement test.

Further analysis of those Corpsmembers having low severity of learning problems into RJS1 levels, 14 scored below 3.4 grade level, 118 between

3.7 to 6.8 grade level and 82 read between 7.1 and 10.1 grade level on the RJS1.

Of those Corpsmembers tested showing moderate learning problems 29 scored at an RJS1 grade equivalent level of 3.4, 52 had RJS1 reading level scores between 3.7 and 6.8 and 31 scored between 7.1 and 10.1 grade level equivalent in RJS1 reading achievement.

High or Extreme learning problems were noted in 19 Corpsmembers scoring at or below the 3.4 grade level on the RJS1, 16 had RJS1 reading levels equivalent to the 3.7-6.8 grade level and 7 were tested on the RJS1 to be reading between the 7.1 and 10.1 grade level.

Approximately 75% of those Corpsmembers identified by use of London Procedure as having significant learning problems scored below 18 (under a 7.0 reading grade level equivalent) on the RJS1. Therefore, the RJS1 might be an effective first level screening devise for determining Corpsmembers who would benefit by further diagnostic testing with The London Procedure.

CONCLUSIONS

The London Procedure, as used by trained personnel, has apparent value for screening and diagnosing learning problems in Job Corps populations.

The current research project showed an overall incidence of learning problems which can interfere with academic progress in 91% of those tested. The degree of severity is the most important factor in determining those Corpsmembers in need of special instructional programs. Corpsmembers with a low severity of learning problems may be able to

function adequately in existing educational programs. Those in moderate, high and extreme categories, which included about 40% of the sample, are in need of special instructional programs which taking into account their learning strengths and weaknesses.

IMPLICATIONS

The incidence of learning problems in Job Corpsmembers as cited by this study has many implications. An understanding of learning problems in general and their particular application in the academic setting are essential to the reader's knowledge and understanding of these implications.

Every human being has a style of learning that relies on their most successful modes of deriving meaning from the information placed before them. Information can be assimilated through the modalities of seeing, hearing, touching, moving, smelling or tasting. Individuals use certain combinations and varying degrees of each of these for learning Adapting to each unique situation, in which information must be made meaningful, is a successful and accurate task for most adults. There are built in drives to reduce uncertainty, make meaningful the world around us, and store one set of information so as to predict future responses.

A task which is natural to most adults, in terms of processing information, is an extremely difficult task for others. These adults having processing difficulties may have a multitude of reasons for their difficulties: minimal brain dysfunction, heredity, psyiological or

chemical imbalances, developmental delay, emotional disturbances or personality disorders. No matter what are the causes of these problems a significant percentage of the adult population show some signs of being unsuccessful at making meaning out of the information presented to them. These adults have learning styles which they are unable to adapt to new situations and hense are not always successful at comprehending information, reducing the uncertainty, or learning from one experience to predict necessary following actions.

These maladaptive learning styles may be easily hidden in all realms of an individual's life by compensation and avoidance techniques. Yet, when placed in a performance environment, such as a classroom, the usual techniques employed by the individual do not work. Failure, frustration and reinforcement of a negative self image are renewed again and again.

Through years of experience with adults and children it has been found that there are effective means of instruction that can facilitate learning for individuals with maladaptive learning styles (learning problems). The medium is often the message; hense the adult with learning problems will profit most from a personalized instructional environment. This personalzied environment will need to be implemented in such a way as to work with each individual's own learning style, learning strengths and weaknesses. Such an environment must be devised to facilitate the learner's ability to construct meaning from the experience presented before them.

The basis of this instruction will need to be an understanding and diagnosis of cognitive abilities (learning strengths and weaknesses), aptitude levels (academic skills) and affective needs (personal and emotional). From this understanding it is necessary to design different treatments for different individuals using a wide variety of teaching techniques and resource materials.

Adequate attention to individual needs require a low teacher/pupil ratio. A variety of alternative instructional materials are needed along with audio visual equipment. These factors result in a per pupil instructional cost well above that required for the regular academic programs. Cost factors must be weighed against benefits. The benefits of a thorough screening and diagnosis of learning problems (in addition to already instituted achievement tests) followed by specialized instruction should maintain a higher retention rate of incoming Corpsmembers with learning problems, greater individual academic achievement leading to better vocational training and higher job placement.

RECOMMENDATIONS

1. The London Procedure should be used by Job Corps to identify job Corpsmembers who have learning problems of sufficient severity to interfere with their learning.

2. Not all Job Corpsmembers need be tested. RJS1 scores, along with teacher referrals, may adequately predict those Corpsmembers in need of further diagnostic testing.

3. Specially trained staff should be provided at each site where The London Procedure is implemented.

4. Staff numbers will vary according to the number of Job Corpsmembers at each site. A trained test administrator and teacher are a minimum requirement. Ideally, the test administrator should also be the teacher. In larger programs a test administrator may function as a part of a teacher team. Large Job Corps centers may need more than one trained test administrator and teaching teams.

5. Both funds and time should be provided for in service training of staff to be involved in special instructional programs for Job Corpsmembers with learning problems. In service training should include:

   A. Understanding of learning problems
   B. Administration of The London Procedure
   C. Using The London Procedure for diagnosis
   D. Learning theory
   E. Writing individual educational programs (IEPS)
   F. Alternative instructional materials
   G. The use of audio visual and other instructional equipment
   H. Counseling techniques

6. Instruction should be provided in a room separate from those rooms used in the regular instructional program. The proper learning environment will require a fiscal commitment for materials and equipment not currently in wide use in Job Corps educational programs.

7. Implementation of special instructional units to provide for Job Corpsmembers with learning problems should include an evaluation design to measure the effectiveness of providing these special services.

8. The recommendations made should be initially implemented in selected Job Corps sites. If proven successful the program can be expanded at the discretion of the national Job Corps office.

9. A follow-up of the 404 Job Corpsmembers tested in the research project should be conducted in October 1979 (six months after the initial testing) and April 1980 (one year after the initial testing). The follow-up should endeavor to determine length of stay in the program and academic progress, and any correlations between these factors and the incidence and severity of learning problems.

Appendix

Correlation Analysis: Introduction

TABLE VII	Percentages Below Criteria by Sex
TABLE VIII	Percentage of Job Corps Participants Below Criteria in Terms of Length of Stay in Program (new vs. old)
TABLE IX	Percent of Job Corps Participants Below Criteria by RJS1 Levels
TABLE X	Mean Group Differences for The London Procedure Testing
TABLE XI	Prediction of New-Old Job Corp Participants
TABLE XII	Prediction of RJS1 Scores
TABLE XIII	Prediction of MJS1 Scores
TABLE XIV	Correlation of RJS1, MJS1 to The London Procedure Sub tests

Appendix A

TABLE VII

Percent of Job Corps Participants
Below Criteria by Sex

Variable	Male	Female	p
PLR	15.3%	7.5%	.06
PLL	17.7%	8.8%	.03
MFT	10.6%	11.3%	.005
COMP	34.7%	46.6%	.06
ALPH	18.6%	9.4%	.02
DAY SPELL	38.8%	16.3%	.00001
MO SEQ	24.0%	13.2%	.01
MO SPELL	63.0%	48.8%	.06

Table VII indicated the sub-tests from The London Procedure on which males scored significantly different than females. Males had a greater incidence of learning problems in the sub-test areas of PLUS LENS (Right and Left), writing the ALPHABET, SPELLING THE DAYS OF THE WEEK and both placing the MONTHS OF THE YEAR in order and spelling them. Males had lesser incidence of problems in the areas of MOTOR FREE (Visual Perception) TEST and the auditory COMPREHENSION. Generally the females had better eye sight, reading and sequencing ability while the males were better with visual perception tasks not involving a motor response and on listening for comprehension.

TABLE VIII

Percent of Job Corps Participants
Below Criteria by Length
of Stay in Program (New vs. Old)

Variables	New	Old	p
DAR	19.1%	6.9%	0.03
ALPH	11.6%	18.9%	0.06

Table VIII indicates the sub-tests of The London Procedure in which old and new Corpsmembers scored significantly different. The new participants (enrolled in the Job Corps program for less than 30 days prior to the beginning of study) did not do as well as the old Corpsmembers (enrolled in the Job Corps program for 30 or more days prior to the beginning of study) in DISTANCE VISUAL ACUITY of the right eye. The new Corpsmembers that were tested did better than the old Corpsmembers on ALPHABET sequencing.

TABLE IX

Percent of Job Corps Participants
Below Criteria on London Procedure Sub-Tests
by RJS1 Levels

Variables	0-8	9-18	19 + above	p
PLR	17.4%	12.2%	9.7%	.02
NAL	12.7%	4.1%	3.5%	.03
EHMC	39.7%	24.5%	19.4%	.003
VMI	47.7%	36.3%	25.6%	.003
COMP	53.9%	42.0%	28.2%	.01
SMN	49.4%	33.2%	18.8%	.0001
SMW	30.2%	22.0%	13.8%	.002
ALPH	39.7%	12.3%	8.3%	.0001
DAY SEQ	30.2%	6.7%	9.0%	.0001
MO SEQ	38.1%	19.5%	11.8%	.0001
DAY SPELL	68.3%	27.1%	17.3%	.0001
MO SPELL	79.6%	61.1%	43.5%	.0001

Table IX describes the comparison of the tested Corpsmembers RJS1 level to the actual areas of weaknesses.

The Job Corps participants scoring below 9 on the RJS1 had significantly greater percentage of below criteria scores than those scoring above 18 on RJS1 in the areas of PLUS LENS TEST for farsightedness (right eye) NEAR VISUAL ACUITY (left eye), EYE-HAND MOTOR COORDINATION, VISUAL MOTOR INTEGRATION, auditory COMPREHENSION, AUDITORY SEQUENCIAL memory

(numbers and words) and in writing the ALPHABET, DAYS OF THE WEEK and MONTHS OF THE YEAR.

TABLE X

Mean Group Differences for
London Procedure Testing ($p \leq .05$)

Variables	New vs. Old	Male vs. Female	0-8	9-18	Above 18
DAR	7.0[a] < 7.6				
PLR		7.0 < 7.6			
PLL		6.7 < 7.5			
MFT			24.5	< 25.8	26.3
EHMC			1.4	< 1.6	1.8
VMI			6.0	7.0	< 7.7
COMP	4.5 < 4.8		4.3	4.6	< 4.9
SMN			4.6	< 5.3	< 6.0
SMW		20.7 > 19.5	18.7	20.0	< 21.1
ALPH	.9 > .8	.8 < .9	.6	< .9	.9
DAY SEQ			.7	< .9	.9
DAY SPELL	5.4 > 5.0	4.8 < 5.7	3.5	< 5.3	5.7
MO SEQ		.8 < .9	.6	< .8	.9
MO SPELL		8.8 < 9.8	6.7	< 9.0	9.8

[a] mean scores for group

The relationships between group membership and the test scores were further investigated by analysis of variance for differences in mean scores for the following groups

- New versus Old
- Male versus Female
- RJS1 versus (0-8) versus (9-18) versus (above 18)

The results of these analysis are given in Table X. Generally these results are consistent with the incidence of criteria results reported in Tables VII, VIII, and IX.

For the comparisons of male and female to sub-test scores, the results of Table VII show a significant Chi square with the MOTOR FREE (Visual Perception) TEST but in Table X no differences between mean scores is reported. This is due primarily to the nature of the Chi square test which reflects that the distribution of the frequencies of test scores were different from chance but this does not necessarily mean that one group scored higher than another overall. In fact the percentages of below criteria (10.6% for male and 11.3% for females) are very close suggesting that the differences are other than the frequency below or above criteria. Similarly the auditory COMPREHENSION results show a significant Chi square but no differences between means for male and female.

The results for comparison of incidence of below criteria scores for new and old Job Corpsmembers (Table VIII are consistent with the comparisons of the mean scores for these groups (Table X). Two variables show statistically significant differences in mean scores which did not show differences in the Chi square analysis. The old members scored an average of .3 of a score point higher on auditory COMPREHENSION and .4

of a score point lower than the new members on the DAYS OF THE WEEK - SPELLING measure.

The results for comparison of incidence of below criteria scores for the three reading levels as measured by RJS1 in Table IX are consistent with the comparison of the mean scores for these three groups given in Table 10. Two variables, PLUS LENS (right eye) and NEAR ACUITY (left eye) resulted in significant CHI Square statistics ($p \leq .05$) while no differences between means were detected. One variable, MOTOR FREE TEST resulted in mean differences between levels of RJS1 but no Chi Square differences. The means of the RJS1 groups were all above the weakness criterion for the MOTOR FREE TEST variable and therefore were not reflected as differences in incidence of learning problems.

Predictive Statistics

Three step wise regression analyses were computed:

1. Prediction of new - old Job Corps participants (Table XI)
2. Prediction of RJS1 scores (Table XII)
3. Prediction of MJS1 scores (Table XIII)

The London Procedure test scores were used as predictors for each analysis. The predictor for new - old participants (Table XI) included a visual test DISTANCE ACUITY - RIGHT EYE, the two entrance tests for reading and mathematics currently in use in Job Corps and the auditory COMPREHENSION test, an oral understanding and a memory measure. The differences between new and old participants were not pronounced and therefore membership in one of these groups or the other could not be predicted to any great extent.

TABLE XI

Predictors of New - Old
Sample Membership

Variable	R	R^2	R^2	Simple r
DAR	.15	.02	.02	.15
MJS1	.21	.04	.02	-.14
COMP	.26	.07	.03	.14
RJS1	.29	.08	.01	-.12

TABLE XII

Predictors of RJS1 Scores

Variable	R	R^2	R^2	Simple r
READ	.58	.33	.33	.58
MJS1	.64	.41	.08	.44
AM	.66	.43	.02	.49
COMP	.67	.45	.02	.31
VMI	.68	.46	.01	.18
ALPH	.68	.46	.01	.27

TABLE XIII

Predictors of MJS1 Scores

Variables	R	R^2	R^2	Simple r
RJS1	.44	.19	.19	.44
MFT	.50	.25	.05	.34
DAY SPELL	.53	.28	.04	.40
READ	.54	.29	.01	.28
COMP	.55	.30	.01	.26
AM	.56	.31	.01	.39

TABLE XIV

Correlation of RJS1, MJS1
to The London Procedure Subtests

	Sub-Tests	RJS1	MJS1
Visual Functioning	DAR	.04	.03
	DAL	.06	.07
	PLR	.04	-.03
	PLL	.02	-.03
	NAR	-.04	-.06
	NAL	.08	-.01
	BIN	-.02	.01
Visual Perception	MFT	.27***	.34***
	EHMC	.18***	.11
	VMI	.18***	.19***
Auditory Functions	PTSFR	.04	-.05
	PTSFL	.05	-.03
Auditory Perceptions	COMP	.31***	.26***
	SMN	.28***	.14**
	SMW	.24***	.11
Reading Encoding and Decoding	ALPH	.27***	.25***
	DAY SEQ	.25	.18***
	DAY SPELL	.51***	.40***
	MO SEQ	.24***	.23***
	MO SPELL	.49***	.36***
	AM	.49***	.39***
	READ	.58***	.28***

**$p \leq .01$

***$p \leq .001$

Table XII gives the predictors of the RJS1 (reading) level scores. These predictors include reading related measures from The London Procedure as well as some auditory and visual skills. Variables including aspects of memory and sequencing were also among the predictors.

Table XIII gives the predictors of the MSJ1 (mathematics) level scores. These predictors include tests reflecting figure recognition, sequencing, reading and audio memory and comprehension skills.

The London Procedure sub-tests generally correlate with the RJS1 and MJS1 as shown in Table XIV. The areas of visual functions and auditory functions are the least significant in their relationships to the RJS1 or MJS1. The areas of visual and auditory perceptions and reading encoding and decoding have the strongest relationship with RJS1 and MJS1 scores.

The use of the RJS1 for identifying Job Corpsmen who would benefit from further diagnostic testing seems to be appropriate as a first estimate. Job Corpsmen with deficiencies in functions related to learning that are not related to reading would not be identified by this procedure. These include visual and auditory functions. Teachers could be alerted to watch for evidences of these skills.